

Laysan Island Invasive Plant Monitoring and Control with Volunteers Project Proposal

Name of Project: Laysan Island Restoration Volunteers

Refuge/Wetland Management District: Hawaiian Islands National Wildlife Refuge within the Papahānaumokuākea Marine National Monument

Project Description: The goal of the project is to continue volunteer habitat restoration at Laysan Island. Laysan is an isolated island, located 930 miles northwest of Honolulu and accessible only via a 4-day ship voyage. The island's human population of 2 staff technicians and 2 volunteers spend 6 months at a time at a FWS field camp with little, if any, contact with the outside world. The primitive living conditions consist of platform tents where personnel live, work, eat, and sleep.

Less than 100 years ago the island was almost entirely de-vegetated due to the misguided introduction of rabbits by private parties. With the extermination of the rabbits, the island re-vegetated with many alien species and FWS began active habitat restoration efforts in 1992. Laysan is now a shining example of effective ecosystem restoration and is regarded as a jewel in the highly honored Papahānaumokuākea. Since the inception of the project, the Common Sandbur (*Cenchrus echinatus*) was removed from over 650 acres; and with only 8 plants found in the last 6 months, the eradication is nearly complete. Laysan is critical habitat for endangered and Papahānaumokuākea endemic species such as the world's most endangered duck, the Laysan duck, and the Laysan Finch. Laysan is also critical nesting habitat for millions of seabirds including Laysan and other Albatross, Frigatebirds, Boobies, Tropicbirds, Petrels, Shearwaters, Noddies, and Terns.

This project will provide funds to support volunteer activities at Laysan to restore the island's ecosystem. Volunteers are instrumental to continue efforts to eradicate alien invasive species such as Indian dropseed (*Sporobolus pyramidatus*), Bermuda grass (*Cynodon dactylon*), and Indian fleabane (*Pluchea indica*) by removing the plants, conducting post-monitoring, and treating the sites to prevent reestablishment. Volunteers also propagate and out-plant native species in areas free of alien invasive species. In addition to the habitat restoration, volunteers are essential to regular monitoring on the vertebrate species for population health and invertebrate species for new invasives. Since the inception of the project, FWS has trained 100 volunteers; offering valuable job and life experience, and training future restoration biologists.

The control model is consistent with the Early Detection and Rapid Response including: Island Quarantine, Continual Monitoring, Interagency consulting, Assessment and Prioritization, Removal, Post-removal monitoring, and Reporting including interagency communication to promote awareness. Each year volunteers treat 500,000 Indian dropseed and 50,000 Bermuda grass (on 50 ac); And have more than doubled the number of Indian Fleabane treated from 7000 in 2009 to 15,000 in 2010. They continue long term monitoring and control projects of the Common Sandbur and Swinecress (*Coronopus didymus*), for early detection and response of any new plants, as well as monitor and remove lower priority species such as Tobacco (*Nicotiana glauca*) and Hairy horseweed (*Conyza bonariensis*) as possible. Teams will survey for ants to assess the current species on island and monitor for new introductions

Friends Groups, Volunteers and Other Partners: Laysan work would not be possible without the efforts of dedicated partners from FWS Ecological Services, USDA, and National Marine Fisheries. Each year Laysan volunteers work with staff to monitor and treat approximately 65 acres for infestations and the entire island (1,016 acres) is continually monitored. Volunteers are engaged in native plant propagation and outplanting activities, including propagation of endangered species such as the Hawaiian endemic Fan Palm (*Pritchardia remota*) and the endemic Laysan sedge (*Cyperus pennatiformis* var. *bryanii*), a species of concern *Solanum nelsonii*.

Public Outreach and/or Environmental Education: Papahānaumokuākea Marine National Monument Reports are issued on a monthly basis at <http://www.fws.gov/hawaiianislands/monthlyupdates.html> and http://papahanaumokuakea.gov/management/managers_reports.html and include news and reports from Laysan Island. Additionally, Laysan Island volunteers assist with writing trip reports for each field season reporting on the data collected, the status of the island, and surveys conducted.

Post-treatment Monitoring: When a new infestation is found the location is marked with a GPS point. The infestation is evaluated based on size and time requirements. If it is determined to be manageable, a treatment plot will be established. Each invasive species is monitored on a set schedule; beginning with weekly monitoring and moving on to progressively longer monitoring intervals as the duration since the last detection increases.

Criteria for Project Success: This year Laysan Island will provide training for 4 volunteers who will spend time on the remote location learning invasive species removal, avian species monitoring, entomological and vegetation survey techniques and plant propagation. This year's volunteers will conduct approximately 2500 hours of invasive species removal, 500 hours of vertebrate species monitoring, 25 hours of invasive invertebrate monitoring, 500 hours of data management, and 500 hours of reporting.

Summary from 2010: In 2010 Laysan was awarded \$20,000 for invasive species removal with volunteers. In 2010 The Laysan Restoration achieved the following results:

Project	Person Hours	Plants	Estimated Acres Controlled/Monitored
Sandbur	55	1	300
Indian Fleabane	750	15,000	8
Indian Dropseed/ Bermuda Grass	1300	650,000	50
Swinecress	50	0	10

The Sandbur and Swinecress Projects highlight the success we have had in removals and prevention of re-introduction, with only 1 Sandbur found in 2010 despite over 300 acres of monitoring. The 2010 monitoring year was also the first year recorded with no swinecress, and these successes were due in large part to the assistance provided by dedicated volunteers. The continued removal of Indian Fleabane, Indian dropseed and Bermuda grass are modeled after the same programs used with Sandbur and swinecress, however these programs are just at the early stages and require continued effort to achieve the same success.

Budget

GRANT REQUEST

1/10 of Transportation between Honolulu and Laysan*:	\$2,000
Volunteer Supplies (Clothing, Personal Protective Equipment, Monitoring and Removal, Camp):	\$8,500
Food provided on Laysan:	\$7,500
Emergency and satellite Communications:	\$400
Medical Supplies and Training:	\$600
<u>Emergency Preparations and Supplies:</u>	<u>\$1,000</u>
Total:	\$20,000

ANNUAL VOLUNTEER CONTRIBUTION (calculated at \$21.00 per hour per volunteer)

2500 hours invasive species removal:	\$52,500
500 hours vertebrate species monitoring:	10,500
25 hours invertebrate monitoring for invasives:	525
500 hours data management:	10,500
<u>500 hours reporting:</u>	<u>10,500</u>
Total per person:	\$84,525
x (4) Volunteers, Total Matching Contribution:	\$338,100

*** This amount is included only keep request to \$20,000. Additional transportation grant funds are possible up to the \$20,000 true transportation cost.**